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Equatorial Comparisons of Uranus with 41 *Libræ, and a Probable Occultation of the Star by the Planet.* By John Tebbutt.

On 1897 September 5 I commenced a series of comparisons of *Uranus* and 41 *Libræ* by means of the 8-inch equatorial and filar micrometer. On completing the first three nights' observations it appeared to me that the planet would, on the evening of September 8, either occult the star or approach extremely close to it. As absence from home would prevent my observation of this interesting appulse, I requested two prominent Members of the local branch of the British Astronomical Association to watch for the phenomenon. I have since heard from Mr. C. J. Merfield that he saw the planet within $5''$ of the star at $7^{h}\ 20^{m}$, and concluded that it had been much closer at sunset. He afterwards found from the theoretical places in the *Nautical Almanac* that the star must have suffered occultation shortly before sunset, and the observed coordinates communicated in this paper will confirm this conclusion. The accompanying observations have been made under fairly good conditions, and many of them during twilight. The centre of the planet's disc was the point observed throughout.

The star's mean place for 1897·0 has been derived from the following catalogues:—Greenwich, 1840, 1850, 1880; Cape, 1850, 1885; Argelander-Oeltzen, 1850; Radcliffe, 1860, 1890; Washington, 1860, 3rd ed.; Brussels, 1865; Cordoba, 1875; and Melbourne, 1880. The reductions for mean place have been made by means of the annual precessions and secular variations of the Greenwich Catalogue, 1880, checked by those of the Radcliffe Catalogue, 1890, and the proper motion has been taken from the same two authorities. The resulting mean place, assigning equal weights to the authorities, is R.A. $= 15^{h}\ 32^{m}\ 58^{s}{\cdot}70$, N.P.D. $= 108^{\circ}\ 57'\ 45''{\cdot}1$ The observations have been compared with the transit ephemeris on p. 279 of the *Nautical Almanac*, and the means of the resulting corrections, namely $-0^{s}{\cdot}35$, $-0''{\cdot}8$, agree closely with $-0^{s}{\cdot}32$, $-1''{\cdot}2$, the results derived by me from comparisons with α *Libræ* on 1894 October 5. See *R.A.S. Monthly Notices*, vol. lv. p. 83. In concluding this paper I would suggest the desirability of improving the Table of Phenomena in the *Nautical Almanac* by the more free insertion of conjunctions of planets with well-known stars, for results derived from micrometric measures at such opportunities are, I think, quite equal to those from ordinary meridian observations. I may add that *Neptune* will pass within micrometric distance of 114 *Tauri* at his opposition in December next.

Results of Micrometer Comparisons of Uranus and 41 *Libræ.*

1897.		Windsor Mean Time.	Comps.	Planet's Centre − Star.		Star Reductions.		Parallax Corrections.		Geocentric Apparent Place of Planet's Centre.		Corrections to *Nautical Almanac.*	
				R.A.	N.P.D.	R.A.	N.P.D.	R.A.	N.P.D.	R.A.	N.P.D.	R.A.	N.P.D.
		h m		s	′ ″	s	″	s	″	h m s	° ′ ″	s	″
Sept.	5	7 9 31	30	−21·10	−1 18·6	+2·84	+14·6	+0·02	+0·2	15 32 40·46	108 56 41·3	−0·30	−1·5
	6	6 48 38	30	−14 18	−0 52·5	+2·83	+14·6	+0·02	+0·1	15 32 47·37	108 57 7·3	−0·29	−0·8
	7	7 47 6	30	− 6·68	−0 25·5	+2·81	+14·5	+0·02	+0·2	15 32 54·85	108 57 34·3	−0·31	−1 2
	9	7 18 29	30	+ 8·14	+0 29·0	+2·79	+14·5	+0·02	+0·2	15 33 9·65	108 58 28·8	−0·34	−0·5
	10	6 32 9	30	+15·66	+0 56·2	+2·77	+14·4	+0·02	+0·1	15 33 17·15	108 58 55·8	−0·36	−0·8
	11	7 7 10	30	+23·83	+1 26·0	+2·76	+14·4	+0·02	+0·2	15 33 25·31	108 59 25·7	−0·35	−0·3
	12	6 49 27	13	+31·75	+1 55·1	+2·74	+14·3	+0·02	+0·2	15 33 33·21	108 59 54·7	−0·49	−0·3
	13	7 36 57	20	+40·47	+2 25·8	+2·73	+14·3	+0·02	+0·2	15 33 41 92	109 0 25·4	−0·37	−0·6

Windsor, N.S. Wales:
1897 *September* 25.

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Observations of Comet b 1897 (Perrine) made at the Royal Observatory, Greenwich.

(*Communicated by the Astronomer Royal.*)

The observations were made with the Sheepshanks Equatorial, aperture 6·7 inches, by taking transits over two cross-wires at right angles to each other, and each inclined 45° to the parallel of declination. Magnifying power, 55.

1897.	Greenwich Mean Solar Time.	Observer.	☄ − ✱ R.A.	Corr. for Refraction.	Log. Factor of Parallax.	☄ − ✱ N.P.D.	Corr. for Refraction.	Log. Factor of Parallax.	No. of Comps.	Apparent R.A.	Apparent N.P.D.	Comp. Star.
	d h m s		m s	s		′ ″	″			h m s	° ′ ″	
Oct.	21 10 42 19	C. D.	−4 11·35	+0·04	9·8596*n*	−6 18·7	+0·2	0·4014	4	2 57 32·84	16 5 7·3	*a*
	21 10 44 46	,,	−3 25·57	−0·04	9·8522*n*	+5 19·6	−0·1	0·4063	3	2 57 30·88	16 4 55·5	*b*
	24 8 0 2	W.	+0 57·49	+0·01	0·1755*n*	−0 36·0	0·0	0·1033	6	2 11 36·45	12 12 17·9	*c*
	24 8 0 2	,,	+0 48·00	+0·09	0·1755*n*	−4 29·9	+0·1	0·1033	6	2 11 34·17	12 12 18·6	*d*
	25 7 6 30	C. D.	+0 31·90	+0·08	0·2381*n*	−3 36·6	+0·1	9·9157	9	1 49 27·96	11 5 24·6	*e*
	26 8 59 23	A. C.	+1 18·96	+0·03	0·0191*n*	−1 49·6	+0·1	0·5478	3	1 19 32·20	10 0 39·2	*f*
	30 6 40 38	C. D.	+0 6·19	−0·06	9·9871*n*	+3 37·1	−0·2	0·6064	6	22 48 24·51	8 19 10·7	*g*

Notes.

The observations are corrected for refraction, but not for parallax. They are also corrected for the error of inclination of the wires and for the motion of the comet.

Oct. 21.—The Comet was bright.
Oct. 24.—The Comet was fairly bright, with faint nucleus and a short tail.
Oct. 26.—The night was hazy and the Comet faint and ill-defined.
Oct. 30.—The Comet appeared much fainter.

The initials A. C., C. D., and W. are those of Mr. Crommelin, Mr. Davidson, and Mr. Witchell respectively.